UNILATERAL DICHORIONIC TWIN TUBAL ECTOPIC PREGNANCY FOLLOWING FRESH IN VITRO FERTILIZATIONAND EMBRYO TRANSFER: A case report

Abstract.

The gains of invitro fertilization in alleviating the anguish of infertile couples cannot be quantified. However, despite these benefits, in-vitro fertilization increases the overall incidence of ectopic gestation. Twin tubal ectopic pregnancy occurs when two embryos or blastocyst implants in the fallopian tubes rather than within the endometrial cavity. Several mechanisms have been postulated to explain this rare occurrence. It could result from the splitting of embryos already in the Fallopian tube, or from dual implantation from multiple embryos transfer. The case report presented is that of a very rare unilateral twin tubal ectopic gestation following an in-vitro fertilization treatment which was diagnosed pre-operatively in a woman who has had a prior laparotomy with salpingectomy for ectopic pregnancy.

Keywords:**Ectopic pregnancy, in-vitro fertilization, Recurrent tubal ectopic, unilateral dichorionic twin tubal ectopic pregnancy.**

Introduction

Ectopic pregnancy occurs when implantation occurs outside of the endometrial cavity [1]. Twin ectopic pregnancy is the implantation of two embryos or blastocyst outside of the endometrial lining. When both embryos implant in the fallopian tubes rather than inside of the uterine cavity, it is known as twin tubal ectopic pregnancy [2]. This could either be unilateral or bilateral [2, 3, 4].

Several risk factors for extra-uterine pregnancy have been outlined in literature. These include smoking, previous history of tubal damage from poorly treated pelvic inflammatory

diseases, or female genital tuberculosis or pelvic surgeries, puerperal sepsis, previous history of ectopic pregnancy, previous uterine surgeries such as caesarean section, myomectomy, polypectomy, metroplasty, dilatation and curettage or even injuries from utero-cutaneous fistula repair.[3]

Ectopic pregnancy has long been known as one of the leading causes of maternal morbidity and mortality in early pregnancy especially in low resource communities where late presentation or misdiagnosis leads to hemodynamic compromise from rupture [1,2,3]. Twin tubal ectopic pregnancies are harder to identify and also has a higher risk of rupture than singleton tubal ectopic pregnancies [2].

Ectopic pregnancy occurs in 1-2% of all pregnancies [4]. The incidence has been increasing since the advent of in- vitro fertilization (IVF) complicating 2%-11% of all pregnancies after IVF treatment [5]. It is mostly tubal in over 95% of cases [4].

Twin gestation occurs is seen in 1 in 80 spontaneous pregnancies [3,6], hence, twin tubal ectopic pregnancy becomes very rare [3]. Unilateral twin tubal ectopic pregnancy being extremely rare occurs with a frequency of 1 in every 20.000-125.000 pregnancies [1,2,3,6,7] and 1 in 200 ectopic pregnancies [1,5,8]. It Is likely underreported as less than 10 out the over 100 cases of unilateral twin ectopic pregnancies were correctly diagnosed pre-operatively leaving the diagnosis made mostly intra-operatively or at pathological examination of excised specimen [6]. The possibility of underreporting is compounded by vanishing gestation or early fetal wastage common with twin gestation especially if monochorionic [1,6,7].

Ectopic pregnancies occur in the absence of risk factors in about half of the cases. Adhesions resulting in anatomically distorted fallopian tubes from pelvic inflammatory disease more with multiple episodes, previous pelvic surgery especially if tubal, and endometriosis are risk factors. Congenital Mullerian anomalies, assisted reproductive therapy, tumours and

advancing maternal age are also risk factors [1,6,7]. All forms of ovulation induction including in-vitro fertilization which increases the risk of multiple gestations either via multiplicity of embryo transfer or embryo splitting after manipulation can in turn increase the possibility of a twin tubal ectopic pregnancy [5].

Case report.

A 43-year-oldwoman with 18-year history infertility. She had previous ruptured ectopic gestation seven years ago during which she had an exploratory laparotomy and right salpingectomy. She had donor oocyte in-vitro fertilization, and subsequently had three fresh blastocysts transferred. Embryo transfer (ET) was done under transabdominal ultrasound guidance aimed at mid-uterine placement. Pregnancy test 14 days post embryo transfer was positive. She presented 28 days post ET for her confirmatory pregnancy ultrasound scan with complaint of per vaginal spotting. Transvaginal ultrasound scan done showed an empty uterus, two gestational sacs beside each other in the left adnexa, presence of fetal poles with cardiac pulsation in one. She was counselled on the findings, implications and treatment options. Laparoscopy was adjudged not safe in the light of her prior exploratory laparotomy. Her pre op vital signs were Heart rate of 88 beats per minute, blood pressure of 110/70mmHg, respiratory rate of 18 cycles per minute and oxygen saturation of 99% on room air.

Intra-operative findings were severe bowel adhesions completely obliterating the pelvis. Extensive adhesiolysis and bowel mobilization by colorectal surgeon exposed partly the left adnexa enough to lift the left fallopian tube to view with the two separate bulges containing

the products of conception clearly visible. Uterus was not mobile. Left salpingectomy was done and wound closure done. Her post op recovery was uneventful. She was discharged 4 days after surgery in a stable condition.

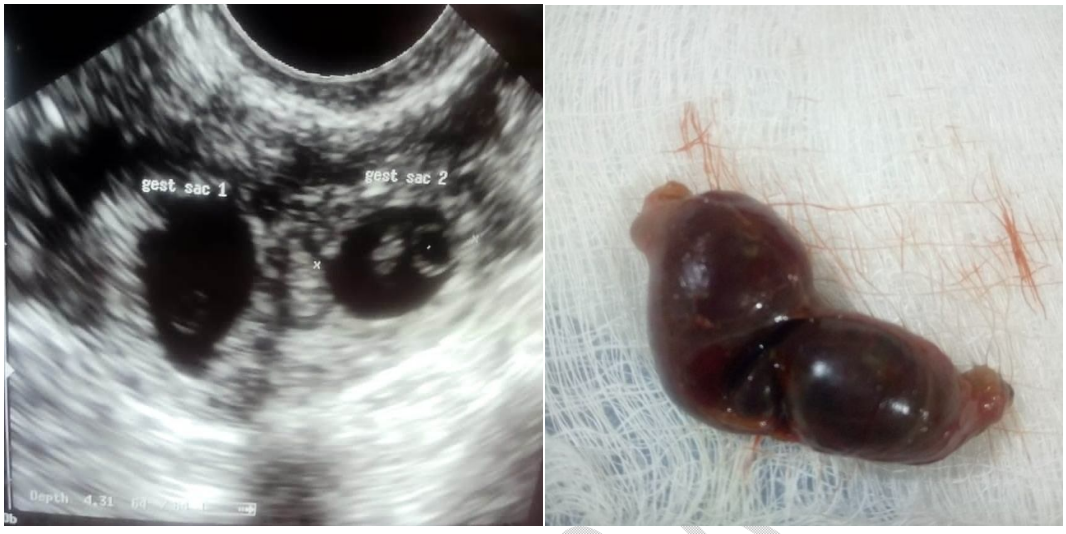

Figure 1 & 2 showing ; (1) Transvaginal sonography demonstrating a unilateral dichorionic twin tubal ectopic gestation, (2) Excised tissue containing 2 ectopic gestations. ***-Courtesy Dr Nwogu***

Discussion

The advent and increasing access to in-vitro fertilization (IVF) has led to rising cases of ectopic pregnancies which complicates 2%-11% of IVF cycles [5, 7].The patient described

had a unilateral left twin tubal ectopic pregnancy following an IVF treatment. Variability in presentation of ectopic pregnancy has been known to pose a diagnostic and therapeutic challenge making it a major cause of pregnancy related deaths in the first trimester [1,3].

The relative risk of death from ectopic pregnancy is 10 and 50 times more than that encountered at childbirth and induced abortion respectively [3]. The situation is made worse as unilateral twin tubal ectopic pregnancy is harder to identify and has a higher risk of rupture which occurs in 30-50% of cases [2].

As much as 95% of ectopic pregnancies are tubal in location [4] as in the case above, a few are found at uncommon sites such as; uterine cornua, peritoneal, cervical, ovarian and prior caesarean section or myomectomy scar defect [1]. Twin ovarian [9, 10], abdominal wall [11], caesarean scar [12], cornual [13] and cervical [14] ectopic pregnancies have on also been documented. There exist more unilateral twin tubal pregnancies compared to fewer bilateral tubal pregnancies. [7]

Risks factors for ectopic gestation include factors that can cause tubal anatomical or physiological distortion such as previous episode of pelvic inflammatory disease, endometriosis, previous pelvic and tubal surgeries, smoking and congenital Mullerian anomalies.[1, 7] Other factors of lesser risk include previous abortion, use of intrauterine device, increasing age, defective embryos or abnormal hormonal milieu [1,5,6]. The risk encountered in the index patient include advanced maternal age, fertility treatment and previous extrauterine pregnancy.

Diagnosis of twin ectopic pregnancy entails a summation of clinical features, laboratory investigations and radiological imaging. Definitive diagnosis is by either by ultrasound, laparoscopy or pathological confirmation after evaluation of removed tissues at laparoscopy or laparotomy [2].The commonest symptoms of twin ectopic pregnancy are similar to those

of singleton ectopic pregnancy which comprises the triad of pain, amenorrhoea and abnormal vaginal bleeding respectively [3,5].

The management of unilateral twin tubal ectopic pregnancy follows the same the guidelines provided for singleton ectopic pregnancies.[7] Surgical and medical management options are dictated by the haemodynamic status of the patient and available expertise[1,2, 3].

Our patient had an urgent laparotomy and left salpingectomy considering the presence of previous pelvic surgery and risk of adhesions for a laparoscopic approach at close of working hours on a weekend when she was seen.

Conclusion:**In conclusion**, extrauterine pregnancy is a life-threatening

gynaecological emergency. The incidence of all forms of ectopic gestation is rising since the advent of assisted conception. It is therefore imperative for gynaecologists to insist on continued pregnancy confirmatory ultrasound scan post embryo transfer to help early detection and prompt management.

consent

The authors certify that they have obtained all appropriate patient consent forms for the data to be published.

Ethical approval

This study was approved by the research committee of the Kingswill advanced fertility center Lagos, where this patient was managed.

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Conflict of interest

None

DISCLAIMER (ARTIFICIAL INTELLIGENCE)-We hereby declare that no generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during writing or editing of manuscripts.

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